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Fig. 7 is a bottom view of the multilayer piezoelectric actuator device illustrated in Fig. 6;

Fig. 8 is a front view of a multilayer piezoelectric actuator device according to a third embodiment of this invention;

Fig. 9 is a bottom view of the multilayer piezoelectric actuator device illustrated in Fig. 8;

Fig. 10 is a front view of a multilayer piezoelectric actuator device according to a fourth embodiment of this invention; and

Fig. 11 is a bottom view of the multilayer piezoelectric actuator device illustrated in Fig. 10.

Description of the Preferred Embodiments:

12 Now, description will be made of several preferred embodiments of this
13 invention with reference to the drawing.⁵

At first referring to Figs. 3 through 5, a multilayer piezoelectric actuator device according to a first embodiment of this invention comprises a laminated structure 3 including a plurality of plate-like piezoelectric ceramics layers or piezoelectric elements 3a and a plurality of plate-like internal electrodes 3b alternately stacked, a pair of external electrodes 5 connected to the internal electrodes 3b on opposite side surfaces of the laminated structure 3, a pair of carbon papers 7 placed on the external electrodes 5, respectively, and a pair of external lead wires 9 connected to the external electrodes 5, respectively. On each of the opposite side surfaces of the laminated structure 3, the internal electrodes 3b are alternately covered with insulating glass coatings 3c and alternately uncovered or exposed. Therefore, the internal electrodes 3b are alternately electrically insulated from and alternately electrically connected to each of the external electrodes 5. In other words, the internal electrodes 3b are connected alternately to one and the other of the external electrodes 5.

The external electrodes 5 are formed, for example, by firing Ag (silver) or Ag/Pd

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Claims 1-10 have been amended as follows:

1. (Amended) A multilayer piezoelectric actuator device comprising:

a laminated structure including a plurality of piezoelectric elements and a plurality of internal electrodes alternately stacked; and

a pair of external electrodes connected alternately to said internal electrodes on respective opposite sides of said laminated structure,

wherein each of said external electrodes [comprising] comprises:

an electrode layer formed on a [first] side surface of said laminated structure; and

a first composite layer formed on said electrode layer and made of a conductive resin including a first conductive material.

2. (Amended) A multilayer piezoelectric actuator device as claimed in claim 1, wherein said electrode [layer is] layers are formed on the side [surface] surfaces of said laminated structure by one [selected from] of firing, plating, and sputtering.

3. (Amended) A multilayer piezoelectric actuator device as claimed in claim 1, wherein said first composite [layer is] layers are respectively adhered to said electrode [layer] layers by thermosetting.

4. (Amended) A multilayer piezoelectric actuator device comprising:

a laminated structure including a plurality of piezoelectric elements and a plurality of internal electrodes alternately stacked;

a pair of external electrodes connected alternately to said internal electrodes on respective opposite sides of said laminated structure; and

a pair of carbon [paper] papers respectively placed on said pair of external electrodes,

wherein each of said external electrodes [comprising] comprises:

an electrode layer formed on a [first] side surface of said laminated structure; and

a first composite layer formed on said electrode layer and made of a conductive resin including a first conductive material, and

wherein said carbon [paper being] papers are placed on said first composite [layer] layers, and said electrode [layer] layers and said carbon [paper being] papers are respectively adhered to each other by said first composite [layer] layers.

5. (Amended) A multilayer piezoelectric actuator device comprising:

a laminated structure including a plurality of piezoelectric elements and a plurality of internal electrodes alternately stacked; and

a pair of external electrodes connected alternately to said internal electrodes on respective opposite sides of said laminated structure,

wherein each of said external electrodes [comprising] comprises:

an electrode layer formed on a [first] side surface of said laminated structure; and

a first composite layer formed on said electrode layer and made of a conductive resin including a first conductive material,

wherein said multilayer piezoelectric actuator device further [comprising] comprises a second composite layer formed on each of said first composite [layer] layers, and said second

20 composite [layer being] layers are made of a conductive resin including a second conductive material and a carbon fiber.

6. (Amended) A multilayer piezoelectric actuator device as claimed in claim 5, wherein said electrode [layer] layers and said second composite [layer] layers are respectively adhered to each other by said first composite [layer] layers.

7. (Amended) A multilayer piezoelectric actuator device as claimed in claim 5, wherein said second conductive material comprises at least one [kind of material selected from] of Ag, Au, Pt, Pd, Cu, Ni, and C.

8. (Amended) A multilayer piezoelectric actuator device as claimed in claim 5, wherein said second conductive material has at least one [kind of shape selected from] of a granular shape, a needle-like shape, and a fiber-like shape.

9. (Amended) A multilayer piezoelectric actuator device as claimed in claim 1, wherein said first conductive material comprises at least one [kind of material selected from] of Ag, Au, Pt, Pd, Cu, Ni, and C.

10. (Amended) A multilayer piezoelectric actuator device as claimed in claim 1, wherein said first conductive material has at least one [kind of shape selected from] of a granular shape, a needle-like shape, and a fiber-like shape.